

09/807236

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SEQUENCE LISTING

<110> E. I. du Pont de Nemours and Company

<120> Plant Histidine Biosynthetic Enzymes

<130> BB1255

<140>

<141>

<150> 60/105, 409

<151> 1998-10-23

<160> 22

<170> Microsoft Office 97

<210> 1

<211> 433

<212> DNA

<213> Zea mays

<220>

<221> unsure

<222> (432)

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gctgtcgaaa aaaggatggc aagatatact attgtaactg acagggtggca aaagttcagt 360  
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<211> 74

<212> PRT

<213> Zea mays

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Gly Lys Met Asn Ile Glu Arg Leu Thr Lys Leu Val Glu Leu Val Gly  
20 25 30

Lys Gln Arg Leu Val Leu Asp Leu Lys Leu Ser Lys Lys Ala Arg Tyr  
35 40 45

Thr Ile Val Thr Asp Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp  
50 55 60

Glu Pro Ala Leu Glu Tyr Leu Ala Ala Phe  
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<211> 490

<212> DNA  
<213> Zea mays

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gaggagatTT gccttacaaa gatgttgtcc ttgggcacag gaagcaaatg atggttggtc 240  
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<211> 76  
<212> PRT  
<213> Zea mays

<400> 4  
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1 5 10 15

Glu Arg Ile Lys Lys Ala Gly Lys Ser Arg Val Asp Val Thr Ile Gly  
35 40 45

Ser Ala Leu Asp Ile Phe Gly Gly Asp Leu Pro Tyr Lys Asp Val Val  
50 55 60

Leu Trp His Arg Lys Gln Ser Met Val Gly Gln Val  
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<212> DNA

<213> Zea mays

<400> 5

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 ggatgttgtg tgcgtctgtt tagcttcag accatgcatac gacattcaca agggaaaagt 360  
 taagcagatt gttggttcta ctcttcggga ttcatccaaat gatggcatgg aacttgtgac 420  
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<211> 81

<212> PRT

<213> Zea mays

<400> 6

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Leu Gly Lys Met Arg Cys Ile Gly Arg Thr Asp Val Val Cys Ala Ala  
 20                    25                    30

Val Ser Phe Arg Pro Cys Ile Asp Ile His Lys Gly Lys Val Lys Gln  
 35                    40                    45

Ile Val Gly Ser Thr Leu Arg Asp Ser Ser Asn Asp Gly Met Glu Leu  
 50                    55                    60

Val Thr Asn Phe Glu Ser Asp Lys Ser Pro Ala Glu Phe Ala Lys Ser  
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Tyr

<210> 7

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<212> DNA

<213> Zea mays

<220>

<221> unsure

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 aacaatggac gaccttagaga ggataaaagaa agcaggcaaa agtcgggttag atgtaaacat 300  
 tgggagtgtct tagatataa ttggangaga ttgccttaacn aagatgttgt ctttggcacc 360  
 agggagccaa gtaatggttt ggncaagtgt gaagaacncc agggaaattaa tccagtanta 420  
 cccagttcca tttgtatnaaa ccnnctggac caaaagataa ttcccccgaa ccaatttttgc 480  
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<210> 8  
 <211> 108  
 <212> PRT  
 <213> Zea mays

<400> 8  
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Thr Asp Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp Glu Pro Thr  
 20 25 30

Leu Glu Tyr Leu Ala Ala Phe Ala Asp Glu Phe Leu Val His Gly Val  
 35 40 45

Asp Val Glu Gly Lys Arg Leu Gly Ile Asp Glu Glu Leu Val Glu Leu  
 50 55 60

Leu Gly His Tyr Ser Pro Ile Pro Val Thr Tyr Ala Gly Gly Val Ser  
 65 70 75 80

Thr Met Asp Asp Leu Glu Arg Ile Lys Lys Ala Gly Lys Ser Arg Val  
 85 90 95

Asp Val Thr Ile Gly Ser Ala Leu Asp Ile Ile Gly  
 100 105

<210> 9

<211> 397

<212> DNA

<213> Zea mays

<400> 9

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 aaagaagatg aacttcttgg aggacatgtt ataatgtttg gctcagatcc tgcaagccag 180  
 gctgctgcac tcgaggcact acatgcatac cctgggttgc tgcaagttgg aggtggaaa 240  
 aatttgcaga atgcaatgtc ttaccttaat gaaggggcca gtcatgttat agtgacctct 300  
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<210> 10

<211> 130

<212> PRT

<213> Zea mays

<400> 10

His Lys Gly Lys Val Lys Gln Ile Val Gly Ser Thr Leu Arg Asp Ser  
 1 5 10 15

Ser Asn Asp Gly Met Glu Leu Val Thr Asn Phe Glu Ser Asp Lys Ser  
 20 25 30

Pro Ala Glu Phe Ala Lys Ser Tyr Lys Glu Asp Glu Leu Leu Gly Gly  
 35 40 45

His Val Ile Met Leu Gly Ser Asp Pro Ala Ser Gln Ala Ala Ala Leu  
 50 55 60

Glu Ala Leu His Ala Tyr Pro Gly Gly Leu Gln Val Gly Gly Gly Ile  
 65 70 75 80

Asn Leu Gln Asn Ala Met Ser Tyr Leu Asn Glu Gly Ala Ser His Val  
 85 90 95

Ile Val Thr Ser Tyr Val Phe Ser Asp Gly Lys Met Asn Ile Glu Arg  
 100 105 110

Leu Thr Lys Leu Val Glu Leu Val Gly Lys Gln Ser Leu Cys Trp Thr  
115 120 125

Leu Ala  
130

<210> 11  
<211> 423  
<212> DNA  
<213> Zea mays

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tcagacaaat ctcctgcaga atttgctaaa ttttataaag cagatgaact tctaggagga 180  
catgttataa tgcttggcgc aaatccttca agccaggctg ctgcactgga ggcactacgt 240  
gcataatcctg gtggtttgca agttggaggt gggataaatt tggagaatgc aatgncttac 300  
cttaatgaag gggccagaca tgtgatagtg acctcttatg tggtaggga tggcaagatg 360  
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cct 423

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<212> PRT  
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<221> UNSURE  
<222> (123)...(124)

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<222> (130)

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Gln Ile Val Gly Ser Thr Leu Arg Asp Leu Ala Xaa Asp Ser Met Glu  
20 25 30

Leu Val Thr Asn Phe Glu Ser Asp Lys Ser Pro Ala Glu Phe Ala Lys  
35 40 45

Phe Tyr Lys Ala Asp Glu Leu Leu Gly Gly His Val Ile Met Leu Gly  
50 55 60

Ala Asn Pro Ser Ser Gln Ala Ala Ala Leu Glu Ala Leu Arg Ala Tyr  
65 70 75 80

Pro Gly Gly Leu Gln Val Gly Gly Gly Ile Asn Leu Glu Asn Ala Met  
85 90 95

Xaa Tyr Leu Asn Glu Gly Ala Arg His Val Ile Val Thr Ser Tyr Val  
100 105 110

Val Arg Asp Gly Lys Met Asn Thr Glu Arg Xaa Xaa Lys Leu Xaa Glu  
115 120 125

Leu Xaa Gly Lys Gln Arg Leu  
130 135

<210> 13  
<211> 535

<212> DNA  
<213> Zea mays

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<400> 13

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gtgtcaacaa tggatgaccc anagaggata aagaagcang caaaagtgcg gtanatgtaa 480  
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<211> 177  
<212> PRT  
<213> Zea mays

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<222> (159)

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<221> UNSURE  
<222> (167)

&lt;220&gt;

<221> UNSURE  
<222> (174)

&lt;400&gt; 14

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1. 5 10 15Tyr Lys Glu Asp Glu Leu Leu Gly Gly His Val Ile Met Leu Gly Ser  
20 25 30Asp Pro Ala Ser Gln Ala Ala Ala Leu Glu Ala Leu His Ala Tyr Pro  
35 40 45Gly Gly Leu Gln Val Gly Gly Gly Ile Asn Leu Gln Asn Ala Met Ser  
50 55 60Tyr Leu Ser Cys Arg Lys Lys Asp Gly Arg Tyr Thr Ile Val Thr Asp  
65 70 75 80Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp Glu Pro Ala Leu Gly  
85 90 95Tyr Leu Ala Ala Phe Ala Asp Glu Phe Leu Val His Gly Val Asp Val  
100 105 110Glu Gly Lys Arg Leu Gly Ile Asp Glu Glu Leu Val Glu Leu Leu Gly  
115 120 125His His Ser Pro Ile Pro Val Thr Tyr Ala Gly Gly Val Ser Thr Met  
130 135 140Asp Asp Leu Xaa Arg Ile Lys Xaa Ala Xaa Lys Ser Arg Val Xaa Val  
145 150 155 160Thr Val Gly Ser Ala Leu Xaa Ile Phe Gly Gly Glu Leu Xaa Tyr Lys  
165 170 175

Glu

&lt;210&gt; 15

&lt;211&gt; 854

&lt;212&gt; DNA

&lt;213&gt; Oryza sativa

&lt;400&gt; 15

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 acaaggaaca aaatatgtt agccaaccat gatataatcg aggtataatg cttaacctgt 180  
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 aaaaaaaaaaaa aaaa 854

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 <211> 49  
 <212> PRT  
 <213> Oryza sativa

<400> 16  
 Thr Met Asp Asp Leu Glu Arg Ile Lys Arg Ala Gly Asn Ser Arg Val  
 1 5 10 15

Asp Val Thr Val Gly Ser Ala Leu Asp Ile Phe Gly Gly Asp Leu Pro  
 20 25 30

Tyr Lys Asp Val Val Leu Trp His Lys Glu Gln Asn Met Val Ser Gln  
 35 40 45

Pro

<210> 17  
 <211> 487  
 <212> DNA  
 <213> Glycine max

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 <222> (477)

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 tcatgtcatac atgctcggag ccgacccttt gagcaaagct tctgccccttg aaagcattac 420  
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 ntttggg 487

<210> 18  
 <211> 108  
 <212> PRT  
 <213> Glycine max

<220>  
 <221> UNSURE  
 <222> (47)

&lt;220&gt;

<221> UNSURE  
<222> (59)

&lt;220&gt;

<221> UNSURE  
<222> (97)...(98)

&lt;400&gt; 18

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1 5 10 15Val Gln Cys Ala Val Gln Phe Arg Pro Cys Ile Asp Ile His Lys Gly  
20 25 30Lys Val Lys Gln Ile Val Gly Ser Thr Leu Gln Asp Leu Lys Xaa Asp  
35 40 45Gly Ser Asp Pro Val Thr Asn Phe Glu Ser Xaa Lys Ser Ala Ala Glu  
50 55 60Tyr Ala Ala Leu Tyr Lys Gln Asp Gly Leu Thr Gly Gly His Val Ile  
65 70 75 80Met Leu Gly Ala Asp Pro Leu Ser Lys Ala Ser Ala Leu Glu Ser Ile  
85 90 95Xaa Xaa Tyr Pro Gly Gly Phe Gly Lys Ser Gly Gly  
100 105

&lt;210&gt; 19

<211> 981  
<212> DNA  
<213> Glycine max

&lt;400&gt; 19

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 tcccaagaac gattggattc cgtattggaa gctcttggtg gtgataaaga aaaacttgc 540  
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&lt;210&gt; 20

<211> 280  
<212> PRT  
<213> Glycine max

&lt;220&gt;

<221> UNSURE  
<222> (120)

&lt;400&gt; 20

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20 25 30Gln Val Lys Gln Ile Val Gly Gly Thr Leu Thr Thr Ala Ser Ser Asp  
35 40 45Leu Lys Thr Asn Tyr Val Ser Lys Leu Pro Ala Gly His Phe Ala Lys  
50 55 60Leu Tyr Lys Glu Asn Gly Leu Thr Gly Ala His Val Ile Met Leu Gly  
65 70 75 80Pro Gly Asn Glu Glu Ala Ala Lys Glu Ala Val Gly Glu Trp Lys Asn  
85 90 95Gly Leu Gln Val Gly Gly Ile Thr Asn Glu Asn Ala Lys Gln Trp  
100 105 110Ile Asp Trp Gly Ala Glu Arg Xaa Val Ile Ile Thr Ser Phe Leu Phe  
115 120 125Pro Asn Gly Lys Phe Ser Gln Glu Arg Leu Asp Ser Val Leu Glu Ala  
130 135 140Leu Gly Gly Asp Lys Glu Lys Leu Val Ile Asp Leu Ser Cys Arg Arg  
145 150 155 160Arg Asp Asp Thr Trp Phe Val Ala Met Asn Lys Trp Gln Thr Ile Thr  
165 170 175Asp Met Glu Val Asn Ala Ala Ser Ile Lys Ser Leu Glu Pro Tyr Cys  
180 185 190Ser Glu Phe Leu Ile His Ala Ala Asp Asn Glu Gly Leu Gln Lys Gly  
195 200 205Ile Asp Glu Gln Leu Val Glu Lys Leu Ala Gln Trp Cys Ser Ile Pro  
210 215 220Val Thr Tyr Ala Gly Gly Arg Asn Leu Gln Asp Leu Asp Tyr Val  
225 230 235 240Lys Lys Leu Ser Gly Gly Lys Val Asp Leu Thr Ile Gly Ser Ala Leu  
245 250 255Asp Val Phe Gly Gly Ser Gly Val Thr Phe Asp Glu Cys Val Gln Trp  
260 265 270Asn Gln Arg Gln Val Ala Ser Ser  
275 280

<210> 21  
<211> 1210  
<212> DNA  
<213> Triticum aestivum

<400> 21  
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ttggcgagc tcgcgggtct cggcacgccc ggccatcc ggcgcgtcaa gagggcgtgc 180  
cgtcggtgc gccgtcagct tcaggccatg tatcgacatt cacaagggga aagttaaaca 240  
gattgttgc tctactctcc gggatgcate ggacgtggc acggcactag tgacaaactt 300  
tgaatcagac aagtctccag cagaatttgc aaatattat aaagaggatg gacttgttgg 360  
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acatgcatac cctgggttgc tgcaagttgg aggtggata aatttggaga atgcaatgtc 480  
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